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SENATE.

} REPORT
No. 675.

TO PROTECT MIGRATORY GAME AND INSECTIVOROUS BIRDS OF THE UNITED STATES.

APRIL 26, 1912.—Ordered to be printed.

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Mr. McLEAN, from the Committee on Forest Reservations and the Protection of Game, submitted the following

R E P O R T .

[To accompany S. 6497.]

The Committee on Forest Reservations and the Protection of Game, to whom was referred the bill (S. 6497) to protect migratory game and insectivorous birds of the United States, submit the following favorable report thereon:

For many years the necessity and importance of effective protection for the bird life of this and other nations has been apparent to ornithologists and all others who have interested themselves in the subject.

The several States of the Union have enacted many laws prohibiting and regulating the killing of birds, but the strong temptation pressing upon every State to secure its full share of edible game birds during the spring and fall migrations has rendered harmonious and effective State supervision impossible.

Game commissioners and other officials representing 43 of the 48 States of the Union, together with some of the leading ornithologists of the country, appeared before your committee, and their testimony, based upon years of experience and practical observation, was conclusive to the fact that State control of migratory birds must, from the very nature of the surrounding temptations and conditions, end in failure.

Conceding the necessity of Federal regulation and the willingness of Congress to exert its power to prevent the extermination of the useful migratory birds, the question of the extent and nature of that power was at once raised and very carefully considered by your committee.

The nations of Europe have for many years been alive to the necessity of the protection of bird life by treaties, regulations, and international declarations and conventions. As early as 1873, the Congress of Agriculturists and Foresters moved, "that the Imperial Austrian

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Government be requested to secure the protection of birds by means of treaties with other States of Europe."

In 1875, Germany, Austria, and Italy entered into a joint declaration for the protection of birds. Since that time international ornithological congresses have been held in London, Paris, Budapest, and Vienna. In 1906, 11 European powers ratified an international agreement consisting of 11 articles, which formed a comprehensive code for the protection of birds.

The fact that several States of the Union have, up to date, exercised the right to regulate the taking of both migratory and nonmigratory birds where no discrimination or distinction has been suggested or desired does not preclude the Nation from asserting its right to protect migratory birds whenever conditions make such protection necessary. A dormant and unused power in a nation may be asserted at any time.

The power of the Federal Government to regulate by treaty the taking of migratory seals and fish can not be questioned, and your committee can see no distinction between the right to regulate by law and treaty the taking of seals and fish that to-day may be in the waters of one State or Nation and to-morrow in the waters of another State or Nation, and the right to regulate the taking of wild birds whose habitat changes from one State or Nation to another with the changing seasons.

The printed report of hearings before your committee, a copy of which has been sent to every Member of the Senate, contains the argument of able lawyers in support of the conclusions reached by your committee. In many of the States of the Union spring shooting is allowed and there are hundreds of sporting clubs in the United States where the shooting is exclusively confined to the spring months.

SOME REASONS WHY THIS CONGRESS SHOULD PASS THIS BILL.

The destruction of game birds for food has been enormous and ruthless during the past 40 years. There are many living now who remember when all of the markets of the East were glutted with partridge, quail, prairie chickens, and wild water fowls, and an enormous game business was carried on by provision dealers. Few accurate statistics of the amount of game sold are obtainable, but Mr. D. G. Elliot, in the report of the United States Commissioner of Agriculture for the year 1864, says:

One dealer in New York was known to have received 20 tons of prairie chickens in one consignment, and some of the larger poultry dealers are estimated to have sold from 150,000 to 200,000 game birds in six months.

VALUE OF INSECTIVOROUS BIRDS.

Anyone who has read recent estimates of the decrease in insectivorous birds and the increase of herbivorous insects can readily believe that as the mammals succeeded reptiles insects will soon possess the earth unless some agency is discovered to check their increase.

We are prone to bear the usual and slowly accumulating burdens with dull resignation and patience. The life and property losses and taxes that are inherited and constant we take for granted. It is the concentrated and unusual calamities that shock and excite the spirit

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SK 361
A. T. S. May 11/12
1912

TO PROTECT MIGRATORY GAME.

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of opposition and the desire to prevent a reoccurrence. By the sinking of the *Titanic* 1,300 lives were lost, and the world was filled with fear and sympathy. Tuberculosis claims 190,000 victims a year in this country and pneumonia 160,000, yet we bear this awful loss of life with the passing comment, that it is a great pity.

The San Francisco earthquake destroyed property to the value of \$400,000,000. This loss was the superinducing cause of the panic of 1907, which reduced values by the billions. If it were known to-day that the country would suffer another such loss within its borders in the year 1912, the wheels of progress the world over would halt in sympathetic fear.

A short time ago the farmers of the country, especially in the Northwest, were much agitated because of the proposed reciprocity agreement with Canada. The loss which they, together with other farmers of the country, will suffer this year and which will benefit no one will exceed by hundreds of millions of dollars the total value of the entire wheat crop of the nation.

As long ago as 1904 Dr. C. L. Marlatt, basing his estimates on the crop reports of the United States Department of Agriculture, asserted that the loss to the agricultural industries in that year, caused by insects alone, could be conservatively placed at \$795,100,000, and this estimate does not include a dollar for the use of insecticides.

Mr. Forbush, in his most comprehensive book entitled "Useful Birds," maintains that the insect pests destroy agricultural products to the value of \$800,000,000 a year. We use large numbers so freely in these days, both in science and finance, that hundreds of millions mean no more to us than hundreds of thousands did a few years ago. There are about 600 colleges in the United States to-day. Their buildings and endowments have been centuries in accumulation. The value of the college and university buildings is estimated at \$260,000,000 and the endowments at \$219,000,000. If they should be destroyed to-morrow—buildings and endowments—the insect tax of one year would replace them and leave a balance sufficient to endow 32 new universities in the sum of \$10,000,000 each.

We have in this country to-day about 20,000,000 school children, and the cost of their education has become by far the heaviest tax laid upon the surplus of the country, yet it costs more by many millions to feed our insects than it does to educate our children. If there is any way in which this vast and destructive tax upon the national income can be prevented or stayed or resisted in any appreciable measure it would seem to be the part of wisdom to act without delay.

For many years individuals, at their own expense, and voluntary societies and representatives of the civilized nations the world over have studied and estimated the value of birds to the human race. We call attention at this time to but a few of the estimates made, and such as seem to be fair and reliable, but enough, we think, to prove that in this country at least we have ruthlessly disturbed, if not destroyed, one of nature's wisest and most valuable balances between the birds and their natural food, and it is clear to those informed upon this subject that unless radical and immediate measures are adopted to restore a sure, safe, and natural equilibrium between insectivorous birds and their foods the time will soon come when the annual loss caused by insects to agriculture in this country alone will be counted in billions instead of millions of dollars.

Most insects, like the green leaf louse, or *aphis*, so destructive to the hop industry and many other of our most valuable fruits and vegetables, reproduce their kind at the rate of ten sextillion to the pair in one season. This number means 40,000 for every square inch of land that is above water. Placed in Indian file, 10 to the inch, it would take light, traveling at the rate of 180,000 miles per second, 2,500 years to reach the file leader.

The potato bug is less fecund. One pair will reproduce from fifty to sixty millions only in a season. The natural increase of one pair of gipsy moths would defoliate the United States in eight years.

These estimates I quote from Prof. Forbush, who in turn gathered them from the United States Biological Survey, and we may say that these cases are fair examples of the reproductive powers of the insectile world. Locusts, army worm, and chinch bugs, unless checked in procreation soon become countless hordes, devastating wide areas of the earth's surface.

It is to be remembered that insects live to eat. Some of them increase their size at birth 10,000 times in 30 days. Dr. Lintner, of the New Jersey Board of Agriculture, reports 176 species of insects attacking the apple tree. (U. S. Biological Survey.) About the same number attack the peach, plum, and cherry trees. Dr. Packard finds 400 species feeding upon the oak; 300 attack the conifera. The number feeding upon cereals, grains, and garden crops is also very large.

The reports of the Bureau of Entomology show that destruction by some insects is widely spread and are increasing. Dr. Marlatt estimates that the loss to the wheat-growing States in 1904 occasioned by the Hessian fly was about \$50,000,000. Dr. Shinar estimates the damage done to crops in the Mississippi Valley caused by the chinch bug in one year as high as \$100,000,000. The Rocky Mountain locusts, in years of their greatest activity, caused the States of the Northwest more than \$150,000,000. Dr. Lintner estimates the annual loss to farmers caused by cut-worms at \$100,000,000. The terrible loss of \$800,000,000 a year is fairly easy of proof.

That the worm does not eat everything that grows is due to several causes—weather, parasites, fungi, insect diseases, insectivorous birds, and mechanically applied poisons, which are expensive, unnatural, and dangerous. However large may be the share of parasites, fungi, and weather in checking the increase of destructive insects, investigation shows that it is lamentably insufficient, and the briefs of the bird defenders pretty clearly indicate that the birds have been, are, and will be without question one of the most important agencies in staying the inroads of insect devastation. Men who have had this subject at heart and in hand for many years assert that bird life is one of the most indispensable balancing forces of nature.

We cite a few instances in support of the foregoing. All birds eat, and most of them eat most of the time, and they eat insects and little else. The old bird has just as keen an appetite as the young bird, and he is much larger and his daily ration is almost incredible.

Mr. Treadwell, of the Boston Society of Natural History, fed a young robin 68 angle or earth worms in one day. Mr. Nash, of the Ontario Department of Agriculture, fed a robin 70 cutworms a day for 15 days. A young crow will eat twice its weight a day of almost anything that happens to be brought before him. The State ornithol-

ogist of Massachusetts, Mr. Forbush, by careful and painstaking observation has collected much reliable information on this subject. He has seen two parent grosbeaks in 11 hours make 450 trips to their nests carrying two or more larvæ at a time. Sparrows, chickadees, vireos, martens, and warblers made from 40 to 60 trips an hour with their beaks filled with all manner of insects. Under the supervision of the United States Biological Survey the crops of 3,500 birds were examined. Thirty grasshoppers and 250 caterpillars were found in the crops of cuckoos. In the crop of a nighthawk were found 60 grasshoppers and in another 500 mosquitoes; 38 cutworms were found in the crop of a blackbird; 70 cankerworms were found in the crop of a cedar bird. Prof. Tschudi estimates the diet of a song sparrow at 1,500 larvæ a day.

Mr. Forbush estimates that a single yellow-throated warbler will consume 10,000 aphids or tree lice in a day. Scarlet tanagers have been seen to eat 35 gypsy moths a minute for 18 minutes at a time.

To quote further from Mr. Forbush on Birds:

More than 50 kinds of birds feed upon different varieties of caterpillars; 38 varieties are known to feed upon devastating plant lice.

Mr. McAtee, of the United States Biological Survey, reports that several of the most destructive species of scale insects are the food of not less than 50 kinds of birds. Beetles, cutworms, grubs, borers, locusts, grasshoppers, crickets, in fact most all of the injurious insects are food for a very great majority of the different kinds of birds.

It is the general belief that the so-called game birds are seed rather than insect eaters. The fact is that the bulk of food of most of this class of birds consists of insects when insects are to be had.

The quail, though not a migratory bird, and, therefore, not within the scope of the pending bill should, however, be carefully protected by State legislation. It feeds upon locusts, chinchbugs, cotton worms, cotton-boll weevils, army worms, Colorado potato beetles, striped cucumber beetles, grasshoppers, ground beetles, and many others. The young feed almost entirely upon insects. Such seeds as they eat are largely those of the harmful weeds as ragweed, smartweed, red sorrel, mercury, pigweed, and the like. If the quail can be protected and become numerous and fearless, they would become the most useful assistants and allies of the farmer.

This is true in a great measure of the partridge or ruffed grouse, snipe, plover, sandpiper, woodcock, wood duck, and black duck, once so common all along the shores of our streams and pools. They were formerly great insect eaters, but they have been so persecuted by the hunters that they hardly now ever live there.

Prairie chickens, like the grouse and wild turkey, feed their growing young almost entirely upon insects and the mature birds prefer this diet.

We quote from Prof. Forbush a few instances of crops saved from destruction by birds:

In Pomerania an immense forest was in danger of being utterly ruined by caterpillars and was unexpectedly saved by cuckoos, which though on the point of migrating established themselves there for weeks and so thoroughly cleared the trees that next year neither predators nor depredations were seen.

In Europe, in 1848, there was a great outbreak of gypsy moths. The hand of man seemed powerless to work off the affliction, but on the approach of the winter titmice and wrens paid daily visits to the infested trees, and before spring the eggs of the moths were entirely destroyed.

According to "Reaumer," the larvæ of the gypsy moth were at one time so numerous on the Limes at Brussels that many of the great trees were nearly defoliated. The moths swarmed like bees in the summer. If one-half of the eggs had hatched the following spring scarcely a leaf would have remained in these favorite places of public resort. Two months later scarcely an egg cluster would be found. This happy result was attributed to the titmice and creepers, which were seen busily running up and down the tree trunks.

In 1892 Australia was afflicted with incursions of immense clouds of locusts. In Glen Thompson district several large flocks of ibis were seen eating the young locusts

in a wholesale manner. Near Victoria swarms of locusts were seen in a paddock. Just as it was feared that all the sheep would have to be sold for want of grass, starlings, spoonbills, and cranes made their appearance and in a few days made so complete a destruction of the locusts that but a few acres of grass were lost.

When Utah was settled, the first year's crop was almost utterly destroyed by myriads of crickets that came down from the mountains. The first crop having been almost destroyed, they had sowed seed for the second year. The crop promised well, but when the crickets appeared the people were in danger of starvation. In describing the condition Mr. George Q. Cannon said: "Black crickets came down by millions and destroyed our grain crops, promising fields of wheat in the morning were by evening as smooth as a man's hand—devoured by insects. At this juncture, sea gulls came by thousands, and before the crops were entirely destroyed, these gulls devoured the crickets, so that our fields were entirely free from them." Several times afterwards the crops were attacked by the crickets and were saved by the gulls.

In 1865 locusts hatched out in countless numbers in Nebraska. Some fields of corn and wheat were entirely destroyed by them. A large field of corn near Dacotah City was literally covered with locusts, and there were indications that not a stalk would escape. About this time, blackbirds appeared in large numbers and made this field their feeding ground. The locusts gradually disappeared. Although the crop had to be replanted, it was due to the birds that a crop was raised at all. Many fields were saved with but slight loss by the work of blackbirds, plover, quail, and prairie chickens.

A severe outbreak of forest tent caterpillars occurred in New York and parts of New England in 1898. Thousands of acres of woodland were devastated, and great damage was done to the sugar maple orchards of New York and Vermont. Birds—warblers, orioles, sparrows, robins, cuckoos, cedar birds, and many others—attacked the caterpillars vigorously, and by 1900 the plague had been so reduced that the injury was not seen.

Increase of insects and damage by them follows destruction of birds. Frederick of Prussia, being particularly fond of cherries, was annoyed to see the sparrows destroying his favorite fruit. An edict was issued ordering sparrow extermination. The campaign against the birds was so successful that not only were the sparrows destroyed, but many other birds were either killed or driven away. Within two years, cherries and most other fruits were wanting. The trees were defoliated by caterpillars and other insects and the King, seeing his error, imported sparrows to take the place of those that had been killed.

A few years since, the harvests of France began to fail. A commission to investigate the cause of the deficiency was appointed by the minister of agriculture. This commission took counsel with experienced naturalists and the deficiency was attributed to the ravages of insects that it is the function of birds to destroy. It seems that the French people had been killing and eating not only the game birds, but the smaller birds as well. Birds' eggs had been taken in immense numbers. A single child had been known to come in at night with a hundred eggs. The number of eggs of birds destroyed in the country annually was estimated to be from eighty to one hundred millions. Before such persecution the birds were rapidly disappearing. As an apparent result of the destruction of the birds, the vines, fruit trees, forest trees, grain and field crops were suffering much from destructive insects. It was concluded that by no other agency than the birds could the ravages of insects be kept down and the commission called for prompt and energetic remedies to prevent the destruction of birds.

The greatest losses from the ravages of the Rocky Mountain locust were coincident with or followed soon after the destruction by the people of countless thousands of blackbirds, prairie chickens, quail, upland plover, curlew, and other birds. This coincidence is significant at least. Prof. Aughey tells how this slaughter was accomplished. Vast numbers of them were poisoned with strychnine in and around the cornfields. It was done under the belief that the blackbirds were damaging the corn crop, but a great number of birds of other species were destroyed as well as the blackbirds.

In Dakota County, in Nebraska, in one autumn, not less than 30,000 birds must have been destroyed. Prof. Aughey writes thus of this destruction: "Supposing that each of these 30,000 birds ate 150 insects daily, we then have the enormous number of 135,000,000 insects saved in this one county in one month that ought to have been destroyed by the agency of birds." When we consider that most of these birds were migratory, and that they would have been busy in other regions the rest of the time in helping to keep down the increase of insects, the harm that their destruction did is beyond computation. The killing of such birds is not a local, it is a national, a continental loss.

All of the foregoing evidence goes to demonstrate the existence of a natural economic relation between these three orders of life. There is a sort of interdependence, and the existence of each one is dependent upon the existence of the others. But for the vegetation the insects would perish, and but for the insects the birds would perish, and but for the birds the vegetation would be utterly destroyed by the unchecked increase of insect destroyers.

It is the earnest recommendation of your committee that the pending bill receive favorable consideration.



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6